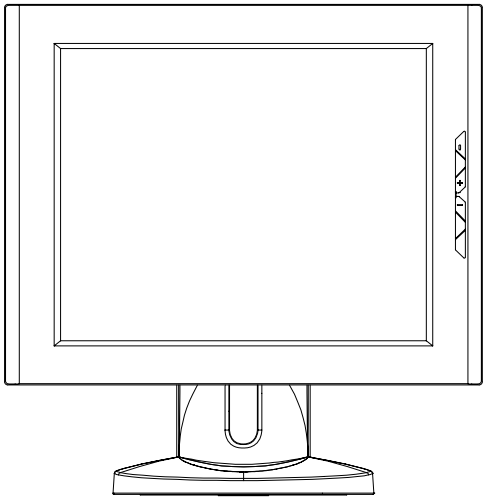
TFT-LCD MONITOR

GH17LS
GH17ES

SERVICE Manual

TFT-LCD MONITOR



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2 Product Specifications

2-1 Specifications

Item	Description	
	GH17LS	GH17ES
LCD Panel	TFT-LCD panel, RGB vertical stripe, normally black transmissive, 17-Inch viewable, 0.264 (H) x 0.264 (V) mm pixel pitch	
Scanning Frequency	Horizontal : 30 kHz ~ 81 kHz (Automatic) Vertical : 56 Hz ~ 85 Hz (~XGA), 76 Hz (SXGA); GH17ES	Vertical : 56 Hz ~ 76 Hz; GH17LS
Display Colors	16,7 Million colors	
Maximum Resolution	Horizontal : 1280 Pixels Vertical : 1024 Pixels	
Input Video Signal	Analog, 0.714 Vp-p ± 5% positive at 75 Ω, internally terminated	
Input Sync Signal	Type : Seperate H/V sync, Composite H/V, Sync-on-Green Level : TTL level (V high ≥ 2.0 V, V low ≤ 0.8 V), Sync-on-Green (≤ –0.25 V)	
Maximum Pixel Clock rate	135 MHz	
Active Display Horizontal/Vertical	338 ± 3 mm/270 ± 3 mm	
AC power voltage & Frequency	AC 90 ~ 264 Volts, 60/50 Hz ± 3 Hz	
Power Consumption	42 W (max), 40W (normal)	
Dimensions Unit (W x D x H) Carton (W x D x H)	17.5 x 18.0 x 8.2 Inches (444 x 457 x 208.4 mm) 20.7 x 10.7 x 20.9 Inches (527 x 271 x 532 mm)	
Weight (Net/Gross)	5.4 kg (11.9 lbs) / 7.9 kg (17.4 lbs)	5.8 kg (12.8 lbs) / 8.3 kg (18.3 lbs)
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 35°C) Humidity : 10 % ~ 80 % Storage Temperature : -68°F ~ 113°F (-20°C ~ 45°C) Humidity : 5 % ~ 95 %	

- GH17LS/GH17ES comply with SWEDAC (MPRII) recommendations for reduced electromagnetic fields.
- Designs and specifications are subject to change without prior notice.

2-2 Pin Assignments

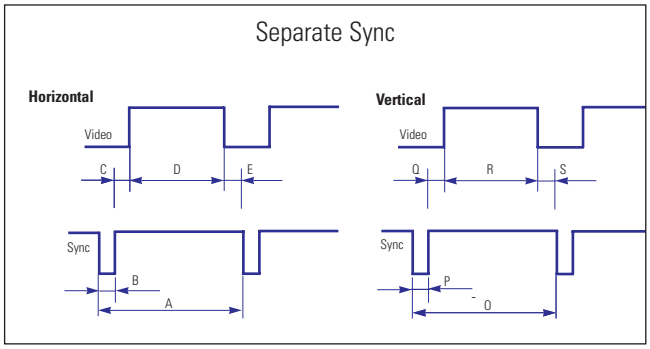
Sync Type / Pin No.	15-Pin D-Sub Signal Cable Connector		
	Separate	**Composite**	**Sync-on-green**
1	Red	Red	Red
2	Green	Green	Green + H/V Sync.
3	Blue	Blue	Blue
4	GND	GND	GND
5	DDC Return (GND)	DDC Return (GND)	DDC Return (GND)
6	GND-R	GND-R	GND-R
7	GND-G	GND-G	GND-G
8	GND-B	GND-B	GND-B
9	DDC Power Input (+5V)	DDC Power Input (+5V)	DDC Power Input (+5V)
10	Self Raster	Self Raster	Self Raster
11	GND	GND	GND
12	Bi-Dr Data (SDA)	Bi-Dr Data (SDA)	Bi-Dr Data (SDA)
13	H-Sync.	H/V-Sync.	Not Used
14	V-Sync.	Not Used	Not Used
15	DDC Clock (SCL)	DDC Clock (SCL)	DDC Clock (SCL)

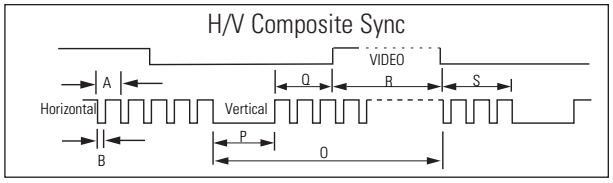
2-3 Timing Chart

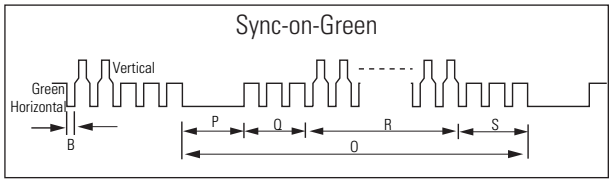
This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

Table 2-1. Timing Chart

Mode / Timing	IBM		VESA								
	VGA2/ 70 Hz 720 x 400	VGA3/ 60 Hz 640 x 480	640/75 Hz 640 x 480	640/85 Hz 640 x 480	800/75 Hz 800 x 600	800/85 Hz 800 x 600	1024/60Hz 1024 x 768	1024/75Hz 1024 x 768	1024/85Hz 1024x768	1280/76Hz 1280x1024 (Analog Only)	1280/75Hz 1280x1024 (Analog Only)
fH (kHz)	31.469	31.469	37.500	43.269	46.875	53.674	48.363	60.023	68.677	81.129	79.976
A µsec	31.777	31.778	26.667	23.111	21.333	18.631	20.677	16.660	14.561	16.640	12.504
B µsec	3.813	3.813	2.032	1.556	1.616	1.138	2.092	1.219	1.016	6.400	1.067
C µsec	1.589	1.589	3.810	2.222	3.232	2.702	2.462	2.235	2.201	2.880	1.837
D µsec	26.058	26.058	20.317	17.778	16.162	14.222	15.754	13.003	10.836		9.481
E µsec	0.318	0.318	0.508	1.556	0.323	0.569	0.369	0.203	0.508	3.200	0.119
fV (Hz)	70.087	59.940	75.000	85.008	75.000	85.061	60.004	75.029	84.997	76.106	75.025
O msec	14.268	16.683	13.333	11.764	13.333	11.756	16.666	13.328	11.765	10.660	13.329
P msec	0.064	0.064	0.080	0.671	0.064	0.056	0.124	0.050	0.044	0.080	0.038
Q msec	0.858	0.794	0.427	0.578	0.448	0.503	0.600	0.466	0.524	3.200	0.475
R msec	13.155	15.761	12.800	11.093	12.800	11.179	15.880	12.795	11.183		12.804
S msec	0.191	0.064	0.027	0.023	0.021	0.019	0.062	0.017	0.015	0.020	0.013
Clock Freq. (MHz)	28.322	25.175	31.500	49.500	49.500	56.250	75.000	78.750	94.500	135.000	135.000
Polarity H.Sync	Negative	Negative	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Negative	Positive
V.Sync	Positive	Negative	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Negative	Positive
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Com.	Separate







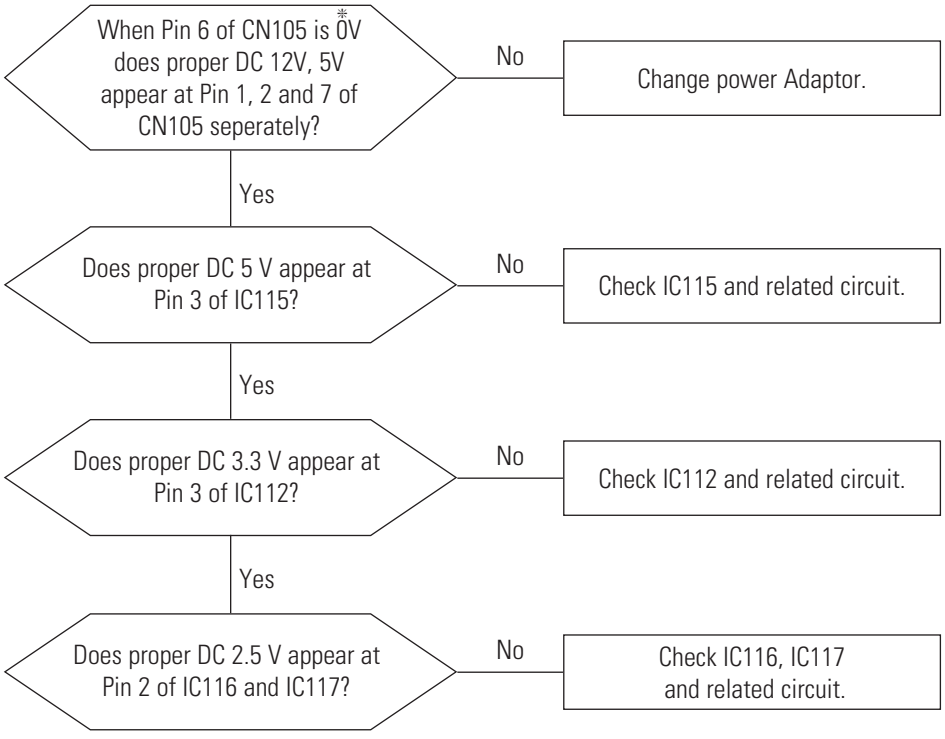
A : Line time total	B : Horizontal sync width	O : Frame time total	P : Vertical sync width
C : Back porch	D : Active time	Q : Back porch	R : Active time
E : Front porch		S : Front porch	

5 Troubleshooting

Notes: 1. Before troubleshooting, setup the PC's display as below.
- Resolution: 1280 x 1024
- H-frequency: 64 kHz
- V-frequency: 60 Hz

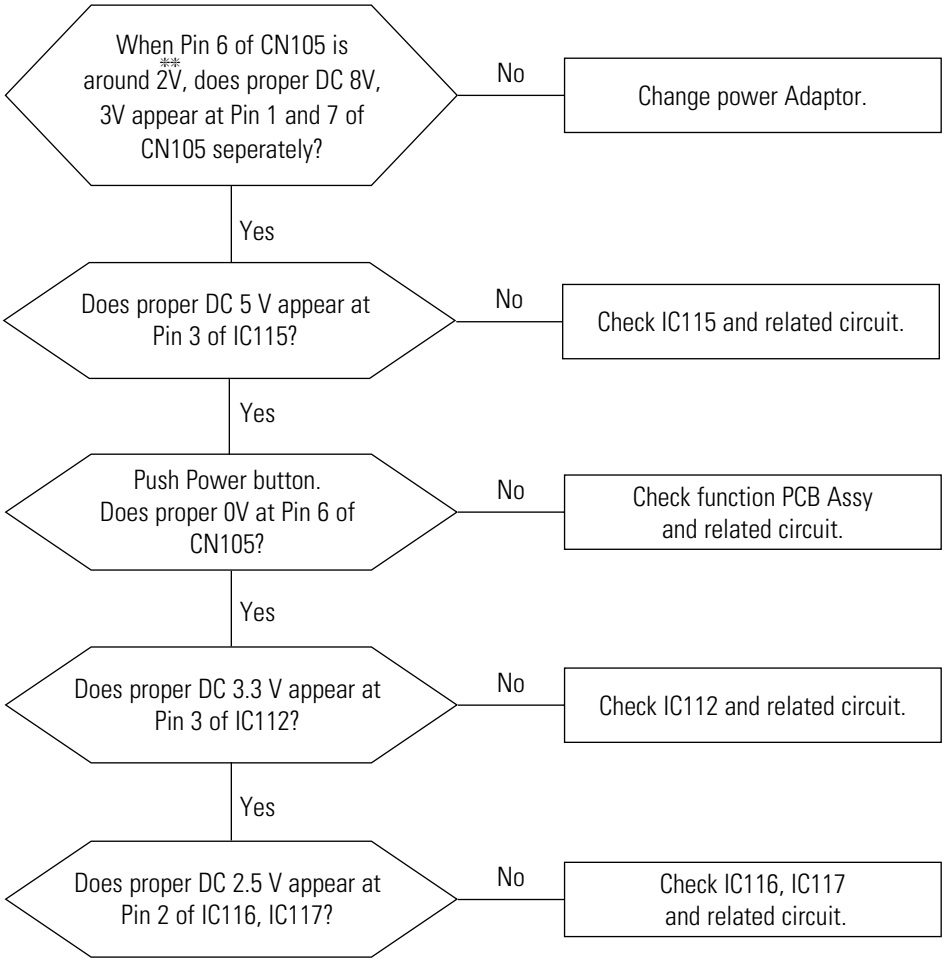
2. If no picture appears, make sure the power cord is correctly connected.
3. If you push and hold the EXIT button for more than 5 seconds, the monitor automatically turns back to the factory preset.

5-1-1 No Power


When Pin 6 of CN105 is ※0V does proper DC 12V, 5V appear at Pin 1, 2 and 7 of CN105 seperately?
No
Change power Adaptor.
Yes
Does proper DC 5 V appear at Pin 3 of IC115?
No
Check IC115 and related circuit.
Yes
Does proper DC 3.3 V appear at Pin 3 of IC112?
No
Check IC112 and related circuit.
Yes
Does proper DC 2.5 V appear at Pin 2 of IC116 and IC117?
No
Check IC116, IC117 and related circuit.

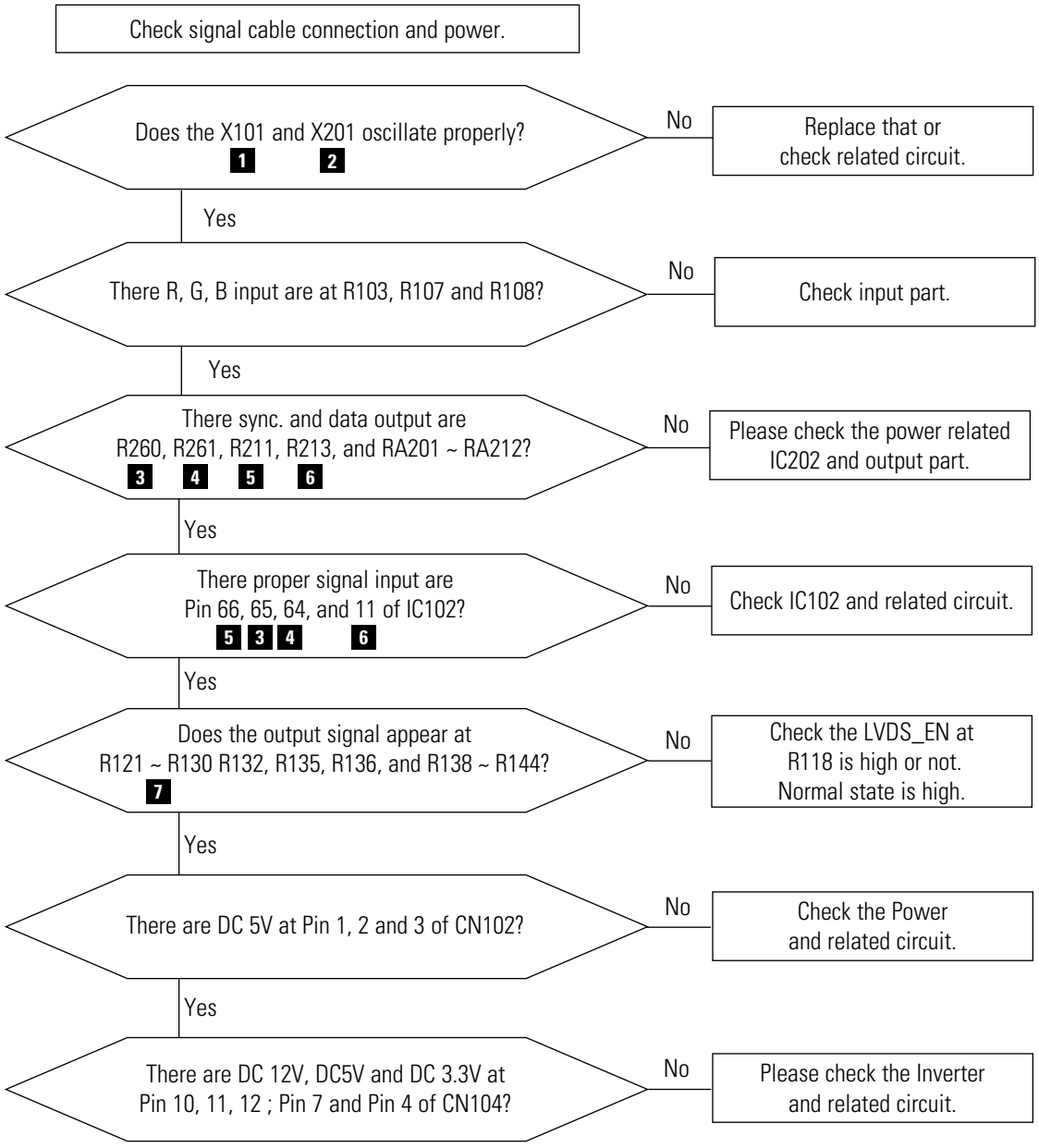
※ 0V means power on state.

5-1-2 No Power


When Pin 6 of CN105 is around 2V※※, does proper DC 8V, 3V appear at Pin 1 and 7 of CN105 seperately?
No
Change power Adaptor.
Yes
Does proper DC 5 V appear at Pin 3 of IC115?
No
Check IC115 and related circuit.
Yes
Push Power button. Does proper 0V at Pin 6 of CN105?
No
Check function PCB Assy and related circuit.
Yes
Does proper DC 3.3 V appear at Pin 3 of IC112?
No
Check IC112 and related circuit.
Yes
Does proper DC 2.5 V appear at Pin 2 of IC116, IC117?
No
Check IC116, IC117 and related circuit.

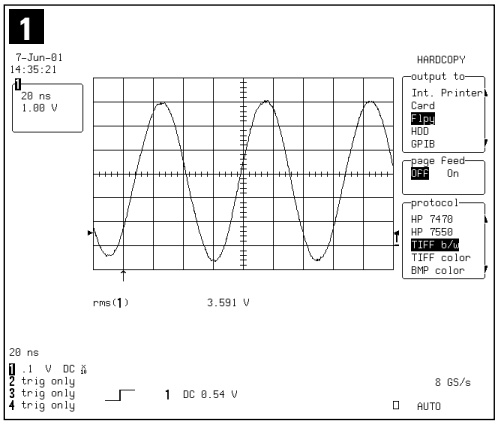
※※ 2V means soft power off or DPMS state.

5-2 No Video


Check signal cable connection and power.
Does the X101 and X201 oscillate properly?
1
2
No
Replace that or check related circuit.
Yes
There R, G, B input are at R103, R107 and R108?
No
Check input part.
Yes
There sync. and data output are R260, R261, R211, R213, and RA201 ~ RA212?
3
4
5
6
No
Please check the power related IC202 and output part.
Yes
There proper signal input are Pin 66, 65, 64, and 11 of IC102?
5
3
4
6
No
Check IC102 and related circuit.
Yes
Does the output signal appear at R121 ~ R130 R132, R135, R136, and R138 ~ R144?
7
No
Check the LVDS_EN at R118 is high or not. Normal state is high.
Yes
There are DC 5V at Pin 1, 2 and 3 of CN102?
No
Check the Power and related circuit.
Yes
There are DC 12V, DC5V and DC 3.3V at Pin 10, 11, 12 ; Pin 7 and Pin 4 of CN104?
No
Please check the Inverter and related circuit.

WAVEFORMS

1



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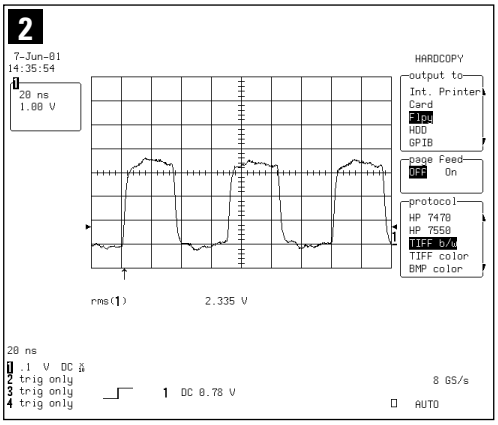

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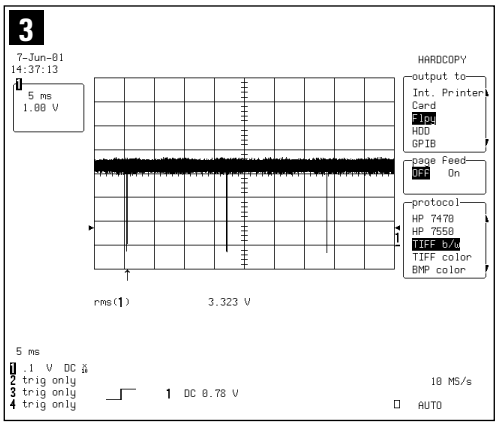

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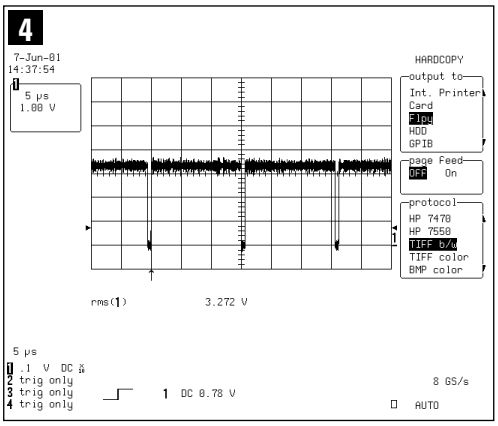

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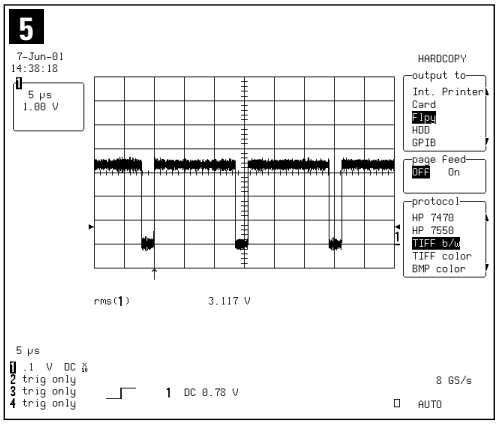

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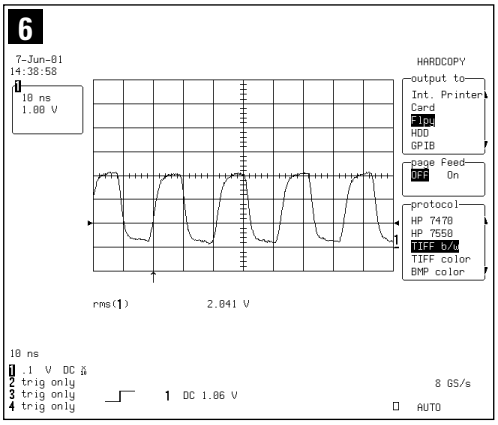

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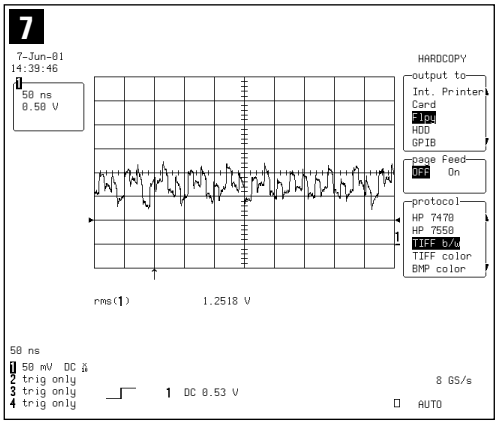

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